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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/595,563	04/27/2006	Naoyuki Ueda	112857-560	2811

29175 7590 09/25/2009

K&L Gates LLP
P. O. BOX 1135
CHICAGO, IL 60690

EXAMINER	
GARRETT, DAWN L	

ART UNIT	PAPER NUMBER
1794	

NOTIFICATION DATE	DELIVERY MODE
09/25/2009	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

chicago.patents@klgates.com

Office Action Summary	Application No.	Applicant(s)	
	10/595,563	UEDA ET AL.	
	Examiner	Art Unit	
	Dawn Garrett	1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 April 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *18-34* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *18-34* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *27 April 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *6/7/06; 4/25/08*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This application is a 371 of PCT/JP04/16794 filed 11/05/2004.

Claim Rejections - 35 USC § 103

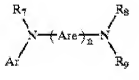
2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 18-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brown et al. (US 2003/0224202 A1).

Brown et al. discloses organic electroluminescent devices comprising a green light emitting layer (see abstract). The light emitting layer comprises host material, which may include a combination of materials that support hole-electron recombination. Electron transporting materials as well as hole transporting materials as described by Brown et al. are taught as suitable host material (see par. 94). Specific hole transporting material described by Brown et al. includes general formula D:

D



In formula D, "Are" is an arylene group, n is 1 to 4, Ar and the R groups are independently selected aryl groups (see par. 52-56). Brown specifically recites in par. 79, 4,4'-Bis[N-(8-fluoranthenyl)-N-phenylamino]biphenyl. Although Brown does not specifically recite the 3-fluoranthenyl isomer of claim 19, it would have been obvious for one of ordinary skill in the art at the time of the invention to have selected fluoranthene groups for the aryl groups of compound D having any attachment point to the remainder of the molecule, because Brown et al. clearly teaches any aryl groups for the R and Ar variables of compound D as suitable and one would expect to arrive at a functional hole-transporting compound within the disclosure of Brown et al.

Electron transporting material taught by Brown et al. as suitable host material includes arylanthracene derivatives such as 9,10-di-(2-naphthyl)anthracene compounds (see par. 115) with respect to claims 24 and 25. [These derivatives are noted as the same structures A1 and A2 of the instant specification on page 12.]

Brown et al. does not exemplify a device comprising the hole-transporting amine derivative and electron-transporting anthracene derivative as hosts in combination. It would have been obvious to one of ordinary skill in the art at the time of the invention to have formed a device comprising both the hole transporting amine derivative and the electron transporting anthracene derivative as host material of the green light emitting layer, because Brown et al. clearly teaches a combination of the host materials may be used and one would expect to achieve a functioning device within the disclosure of Brown et al. Total host material comprises around 90% of the light emitting layer (see abstract). Regarding claim 22, it would have been further obvious to have incorporated the amine derivative at any concentration of the host material

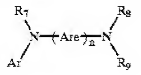
including an amount of less than 50% by volume of the light emitting layer, because one would expect to achieve a functional light emitting layer within the disclosure of Brown et al.

Regarding claims 23 and 24, the anthracene derivatives taught by Brown et al. are the same as preferred anthracene derivatives taught by applicant. The anthracene derivatives are considered to have the same required overlapping absorption spectrum as recited in the claims.

4. Claims 26-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Urabe et al. (US 6,614,174 B1) in view of Brown et al. (US 2003/0224202 A1).

Urabe et al. discloses display apparatus comprising a plurality of organic electroluminescent elements (see abstract and Figures). Urabe et al. does not expressly describe organic electroluminescent elements comprising an amine compound according to instant General Formula 1. Brown teaches in analogous art organic electroluminescent devices comprising a green light emitting layer (see abstract). The light emitting layer comprises host material which may include a combination of materials that support hole-electron recombination. Electron transporting materials as well as hole transporting materials as described by Brown et al. are suitable (see par. 94). Specific hole transporting material described by Brown et al. includes general formula D:

D



In formula D, Are is an arylene group, n is 1 to 4, Ar and the R groups are independently selected aryl groups (see par. 52-56). Brown specifically recites in par. 79, 4,4'-Bis[N-(8-fluoranthenyl)-N-phenylamino]biphenyl. Although Brown does not specifically recite the 3-fluoranthenyl isomer of claim 27, it would have been obvious for one of ordinary skill in the art at the time of the invention to have selected fluoranthene groups for the aryl groups of compound D having any attachment point to the remainder of the molecule, because Brown et al. clearly teaches any aryl groups for the R and Ar variables of compound D and one would expect to arrive at a functional hole-transporting compound within the disclosure of Brown et al.

Electron transporting material taught by Brown et al. as suitable host material includes arylanthracene derivatives such as 9,10-di-(2-naphthyl)anthracene compounds (see par. 115) with respect to claims 32 and 33. [These derivatives are the same as structures A1 and A2 of the instant specification on page 12.]

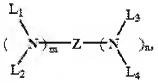
Brown et al. does not exemplify a device comprising the hole-transporting amine derivative and electron-transporting anthracene derivative as hosts in combination. It would have been obvious to one of ordinary skill in the art at the time of the invention to have formed a device comprising both the amine derivative and the anthracene derivative as host material of the green light emitting layer, because Brown et al. clearly teaches a combination of the host materials may be used and one would expect to achieve a functioning device within the disclosure of Brown et al. Total host material comprises around 90% of the light emitting layer (see abstract). Regarding claim 30, it would have been further obvious to have incorporated the amine derivative at any concentration of the host material including an amount of less than 50%

by volume of the light emitting layer, because one would expect to achieve a functional light emitting layer within the disclosure of Brown et al.

Regarding claims 31 and 32, the anthracene derivatives taught by Brown et al. are the same as preferred anthracene derivatives taught by applicant. The anthracene derivatives are considered to have the same required overlapping absorption spectrum as recited in the claims.

It would have been obvious to one of ordinary skill in the art at the time of the invention to have formed a display apparatus as taught by Urabe et al. and to have selected OLEDs taught by Brown et al. for elements of the display, because one would expect to achieve a functional light emission display device within the disclosure of Urabe et al. and Brown et al.

5. Claims 18-23, 26-31, and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Oh et al. (US 2003/0118866 A1) in view of Hosokawa et al. (JP 2002-69044). Oh et al. discloses the following general formula of compounds for an organic electroluminescent device:



In the above formula, L1-L4 may be substituted or unsubstituted aromatic groups (see par. 35). Z may be A1 wherein A1 includes aromatic hydrocarbon groups, which includes biphenyl, bianthracenyl and binaphthyl (see par. 31 and 32, par 71-72 and biphenyl and binaphthyl groups in Oh et al. claim 16, page 20). Oh et al. does not *exemplify* fluoranthene groups as the aromatic groups for two of L1-L4, but does generally teach aromatic groups having the required number

of carbon atoms and similar groups to fluoranthene. Hosokawa et al. teaches in analogous art fluoranthene groups as substitution groups for diamine compounds (see compound A24, page 8). It would have been obvious to one of ordinary skill in the art at the time of the invention to have selected biphenyl, binaphthyl or bianthracenyl for Z and fluoranthene groups for two of L1-L4 groups of the Oh et al. compound, because one would expect the compound to result in a functional material for a device, since such a compound is within the definition set forth by Oh et al. and fluoranthene groups are taught as known substitution groups for a diamine according to Hosokawa et al.

Regarding claims 22 and 30, Oh teaches the amine compound is one of the hosts and the hosts in combination comprise 0.05-99.9 wt% of the light emitting layer (see par. 46).

Although red emission is taught by Oh et al. as *preferred*, Oh et al. discloses the guest material of the light emitting layer may include coumarin derivatives, which is a class of compounds including green emitting compounds (see par. 47). Non-preferred embodiments can be indicative of obviousness (see *In re Lamberti*, 192 USPQ 278 (CCPA 1976); *In re Boe*, 148 USPQ 507 (CCPA 1976); *In re Kohler*, 177 USPQ 399 (CCPA 1973)), and a reference is not limited to working examples (see *In re Fracalossi*, 215 USPQ 569 (CCPA 1982)).

Regarding claims 23 and 31, the second host taught by Oh et al. may include Alq_3 (see par. 75), a green emitting compound, which would be expected to overlap with the spectrum of the fluoranthene derivative, absent evidence otherwise.

Regarding claims 26-31 and 34, although not exemplified, Oh et al. discloses organic electroluminescent devices may form a full color display (see par. 8). It would have been obvious to one of ordinary skill in the art to have formed a device according to Oh et al. and to

have used a plurality of such light emitting devices in combination, because one would expect to achieve a functional light emitting display within the disclosure of Oh et al. and Hosokawa et al.

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dawn Garrett whose telephone number is (571) 272-1523. The examiner can normally be reached Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, D. Lawrence Tarazano can be reached on (571) 272-1515. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Dawn Garrett/
Primary Examiner, Art Unit 1794

September 21, 2009